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**SUPPLEMENTAL INFORMATION DISCLOSURE  
STATEMENT**

Docket Number  
85940/15 (158 US 2)

Application Number  
08/928,893

Filing Date  
September 12, 1997

Primary Examiner  
David M. Naff

Art Unit  
1651

Invention Title  
PROCESS FOR THE SIMULTANEOUS  
PRODUCTION OF XYLITOL AND ETHANOL

Inventor(s)  
Heikkila et al.

I hereby certify that this correspondence is being deposited  
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Signature: Donna M. Bailey

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The patents, published patent applications and abstracts listed below were located during a prior patent search of the subject application or were cited as references in the assignee's U.S. or foreign patents and patent applications. The patents, published patent applications and abstracts listed below generally relate to subject matter of the invention. Copies of the listed patents, published patent applications and abstracts are enclosed for consideration by the Examiner.

Authorization is hereby given to charge any fees in connection with this Supplemental Information Disclosure Statement to Deposit Account No. 11-0600.

W.C. Bauman, U.S. Patent No. 2,684,331 granted July 20, 1954 pertains to a Separation Of Substances Having Different Degrees of Ionization.

R.M. Wheaton, U.S. Patent No. 2,911,362 granted November 3, 1959 pertains to Separation Of Water-Soluble Organic Compounds.

D.B. Broughton et al., U.S. Patent No. 2,985,589 granted May 23, 1961 pertains to a Continuous Sorption Process Employing Fixed Bed Of Sorbent And Moving Inlets And Outlets.

Steiner et al, U.S. Patent No. 3,586,537 granted June 22, 1971 pertains to a Process For The Production Of Xylose.

Jaffe et al., U.S. Patent No. 3,784,408 granted January 8, 1974 pertains to a Process For Producing Xylose.

Melaja et al., U.S. Patent No. 3,928,193 granted December 23, 1975 pertains to a Process For Large Scale Chromatography.

Melaja et al., U.S. Patent No. 4,008,285 granted February 15, 1977 pertains to a Process For Making Xylitol.

Melaja et al., U.S. Patent No. 4,066,711 granted January 3, 1978 pertains to a Method For Recovering Xylitol.

Melaja et al., U.S. Patent No. 4,075,406 granted February 21, 1978 pertains to a Process For Making Xylose.

Gong, U.S. Patent No. 4,368,268 granted January 11, 1983 pertains to a Direct Fermentation of D-Xylose To Ethanol By A Xylose-Fermenting Yeast Mutant.

Sherman et al., U.S. Patent No. 4,471,114 granted September 11, 1984 pertains to Separation of Mannose by Selective Adsorption on Zeolitic Molecular Sieves and corresponds to Finland Patent No. 76593.

Kulprathipanja, U.S. Patent No. 4,857,642 granted August 15, 1989 pertains to a Process For Separating Arabinose From a Mixture of Other Aldoses.

Zinnen, U.S. Patent No. 4,940,548 granted July 10, 1990 pertains to a Chromatographic Separation Process For Recovering Individual Diethyltoluene Isomers.

Kearney et al., U.S. Patent No. 4,990,259 granted February 5, 1991 pertains to a Chromatographic Separator Sorbent Bed Preparation.

Heikkila et al., U.S. Patent No. 5,081,026 granted January 14, 1992 pertains to a Method For The Production Of Xylitol.

Rasche, U.S. Patent No. 5,122,275 granted June 16, 1992 pertains to Simulated Moving Bed Chromatographic Separation.

Heikkila et al., U.S. Patent No. 5,127,957 granted July 7, 1992 pertains to a Method For The Recovery of Betaine from Molasses and corresponds to Finland Patent No. 86416.

Kampen, U.S. Patent No. 5,177,008 granted January 5, 1993 pertains to a Process For Manufacturing Ethanol And For Recovering Glycerol, Succinic Acid, Lactic Acid, Betaine, Potassium Sulfate, And Free Flowing Distiller's Dry Grain And Solubles Or A Solid Fertilizer Therefrom.

Masuda et al., U.S. Patent No. 5,198,120 granted March 30, 1993 pertains to a Process For

## Fractional Separation Of Multi-Component Fluid Mixture.

Zinnen, U.S. Patent No. 5,225,580 granted July 6, 1993 pertains to Process For Separating Fatty Acids And Triglycerides.

Nurmi et al., U.S. Patent No. 5,951,777 granted September 14, 1999 pertains to a Crystallization Method.

International Application No. PCT/US89/05572, filed December 14, 1989, International Publication No. WO 90/06796, published June 28, 1990, of The Amalgamated Sugar Company pertains to an Improvement of Chromatographic Separator Sorbent Bed Preparation.

International Application No. PCT/FI90/00015, filed January 15, 1990, International Publication No. WO 90/08193, published July 26, 1990, of Cultor Ltd. pertains to a Method For The Production Of Xylitol From Mixtures Containing Xylose.

International Application No. PCT/US90/07024, filed November 30, 1990, International Publication No. WO 91/08815, published June 27, 1991, of The Amalgamated Sugar Company pertains to a Time Variable Simulated Moving Bed Process.

European Application No. 87119111.0, filed December 23, 1987, Publication No. 0 279 946 A2, published August 31, 1988 of Mitsubishi-Kasei Technoengineers Ltd. pertains to a Method of Chromatographic Separation.

European Application No. 87119111.0, filed December 23, 1987, Publication No. 0 279 946 A3, published August 31, 1988 of Mitsubishi-Kasei Technoengineers Ltd. pertains to a Method Of Chromatographic Separation.

European Application No. 87119111.0, filed December 23, 1987, Publication No. 0 279 946 B1, published August 31, 1988 of Mitsubishi-Kasei Technoengineers Ltd. pertains to a Method Of Chromatographic Separation.

European Application No. 89109081.3, filed May 19, 1989, Publication No. 0 345 511 A2, published December 13, 1989 of Cultor Ltd. pertains to a Method For The Recovery Of Betaine From Molasses.

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European Application No. 89109081.3, filed May 19, 1989, Publication No. 0 345 511 B1, published December 13, 1989 of Cultor Ltd. pertains to a Method For The Recovery Of Betaine From Molasses.

Abstract: French Application No. FR19890000209 filed January 10, 1989, Publication No. FR2641545 published July 13, 1990 of Agrocinq pertains to a Process For The Biosynthesis of Xylitol.

Abstract: Japanese Application No. 62-235014 filed August 21, 1987, Publication No. 64-080409 published March 27, 1989 of Japan Organo Co., Ltd. pertains to a False Moving Bed Device.

CHEMICAL ABSTRACTS, Volume 105, No. 5, 4 August 1986, (Columbus, Ohio, US), J. C. DU PREEZ et al.: "Xylose fermentation by *Candida shehatae* and *Pichia stipitis*: effects of pH, temperature and substrate concentration";, see page 604, Abstract 41196y, & Enzyme Microb. Technol., 8 (6), 360-364 (1986).

CHEMICAL ABSTRACTS, Volume 112, No. 5, 29 January 1990, (Columbus, Ohio, US), M.T. AMARAL-COLLACO et al.: "Utilization of the hemicellulosic fraction of agro-Industrial residues by yeasts";, see page 449, Abstract 34371t, & Enzyme Syst. Lignocellul. Degrad., 221-230 (1989).

CHEMICAL ABSTRACTS, Volume 114, No. 5, 4, February 1991, (Columbus, Ohio, US), K.B. TAYLOR et al.: "The fermentation of xylose: studies by carbon-13 nuclear magnetic resonance spectroscopy", see page 592, Abstract 41014y, & J. Ind. Microbiol., 6 (1), 29-41 (1990).

CHEMICAL ABSTRACT, Volume 98, No. 9, 28 February 1983, (Columbus, Ohio, US), GONG, CHENG SHUNG et al.: "Conversion of pentoses by yeasts";, see page 484, Abstract 70314c, & Biotechnol. Bioeng., 25 (1), 85-102 (1983).

Publication: "*Third European Congress On Biotechnology*", by Weinheim presented in Muchen, Federal Republic of Germany, Volume II (September 10-14, 1984).

Publication: "*Chromatography of Oligosaccharides and Related Compounds on Ion-Exchange Resin*" by Department of Engineering Chemistry, Chalmers University of Technology, Goteborg, Sweden, Advances in Chromatography, vol. 16, pages 113-149 (1978).

Publication: "*The Distribution of Polyalcohols Between Organic Ion Exchangers and Water*" by Malte Mattisson and Olof Samuelson, Department of Engineering Chemistry, Chalmer Tekniska Hogskola, Goteborg, Sweden, No. 7, pages 1386-1394 (1958).

Publication: "*Ion-Exchange Chromatography of Aldehydes, Ketones, Ethers, Alcohols, Polyols and Saccharids*" published in Journal of Chromatography printed by Chromatographic

Reviews, Elsevier Scientific Publishing Company, Amsterdam-Printed in The Netherlands, 98 pages 55-104 (1974).

Publication: "*Xylitol dehydrogenase from Pachysolen tannophilus*" by G. Ditzelmuller, C.P. Kubicek, W. Wohrer and M. Rohr of Institute for Biochemische Technologie and Mikrobiologies, Wien, Austria, pages 195-198 (July 31, 1984).

Publication: "*Fermentation of Cellulose and Hemicellulose Carbohydrates by Thermotolerant Yeasts*" by Linda D. McCracken and Cheng-Shung Gong of Laboratory of renewable Resources Engineering, A.A. Potter Engineering Center, Purdue University, West Lafayette, Indiana, published by Biotechnology and Bioengineering Symp. No. 12, 91-102 (1982).

Publication: "*Conversion of D-Xylose Into Xylitol By Xylose Reductase From Candida Pelliculose Coupled With the Oxidoreductase System of Methanogen Strain HU*" by V. Kitpreechavanich of Department of Microbiology, M. Hayasi, N. Nishio and S. Hagai of Department of Fermentation Technology, published Biotechnology Letter, Vol 6 No. 10, pages 651-656 (1984).

Publication: "*Quantitative Production of Xylitol From D-Xylose By A High-Xylitol Producing Yeast Mutant Candida tropicalis HXP2*" by Cheng-Shung Gong, Li Fu Chen and George T. Tsao of Laboratory of Renewable Resources Engineering, A.A. Potter Engineering Center, Purdue University, West Lafayette, Indiana, published in Biotechnology Letters Vol. 3 No. 3, pages 130-135 (1981).

Respectfully submitted,



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Inventor(s)  
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Sir:

Atty's Signature Donna M Praiss  
KENYON & KENYON

Enclosed is a Supplemental Information Disclosure Statement and Modified Form PTO-1449 for the above-identified U.S. Patent Application. A copy of each document listed on Modified Form PTO-1449 is enclosed.

Authorization is hereby given to charge any fees in connection with this Supplemental Information Disclosure Statement and the above-identified Patent Application to Deposit Account No. 11-0600.

Dated: 1-31-02

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